

ABSTRACT OF THE DISCLOSURE

A method for bonding an electrically conductive silicon carbide structure to an electrically conductive siliconized silicon carbide structure by temporarily securing the siliconized silicon carbide structure to the silicon carbide structure; placing the silicon carbide structure with secured siliconized silicon carbide structure into an induction heating furnace having an induction coil which heats electrically conductive material in the furnace when sufficient electrical power at a frequency of from about 300 to about 1000 KC is passed through the coil; and causing sufficient electrical power at a frequency of from about 300 to about 1000 KC to be passed through the coil to raise the temperature of the siliconized silicon carbide structure and silicon carbide structure to a temperature above about 1500°C at the region of temporary attachment to release the attachment and cause silicon metal to flow from the siliconized silicon carbide structure into the silicon carbide structure to form a siliconized silicon carbide bond between the silicon carbide structure and siliconized silicon carbide structure.